A risk management plan (RMP) encompasses all activities necessary to manage human health and environmental risk so that they do not exceed the acceptable risk levels under either current or reasonably anticipated future land use conditions. RMP activities may include, but are not limited to, (i) corrective action plans, (ii) activity use limitations (AULs), and (iii) monitoring to verify assumptions made in the risk assessment.

10.1 NEED FOR A RISK MANAGEMENT PLAN

A site-specific RMP is required if either of the following two conditions is met:

- representative chemical of concern (COC) concentrations for one or more complete or potentially complete routes of exposure exceed the appropriate tier-specific risk-based target levels, or

- representative COC concentrations for each complete or potentially complete route of exposure do not exceed the appropriate tier-specific target levels, but the tiered risk assessment was based on certain site-specific assumptions that must be preserved via a RMP.

The overall objective of a RMP is to ensure that:

- Site conditions are protective of human health and the environment under current and reasonably anticipated future conditions,
- Assumptions made in the development of target levels are not violated and/or remain applicable in the future, and
- Recoverable light non-aqueous phase hydrocarbons (LNAPL) are not present in the soil or groundwater in volumes that will result in any of the following conditions: (i) an expanding LNAPL plume in soil or groundwater, (ii) an expanding dissolved plume, (iii) unacceptable risk to human health or the environment, and (iv) explosive or fire hazard.

Note that adequate protection of human health and the environment is afforded by achieving any of the tiered target levels discussed in Section 2.3. Successful implementation of the RMP will result in the issuance of a no further action (NFA) letter by MDNR.

The following sections provide general information regarding the preparation of a RMP.

10.2 CONTENTS OF RISK MANAGEMENT PLAN

Once it is determined that a RMP is necessary for a site, the evaluator should prepare and submit a RMP to MDNR. A RMP may include one or a combination of:

- Active remedial actions to reduce COC concentrations to meet applicable target levels. Examples include, but are not limited to, soil excavation and off-site treatment or disposal, groundwater pump and treat, soil or groundwater vapor extraction, and enhanced in-situ attenuation;

- Application of AULs to eliminate certain exposure pathways. Examples include, but are not limited to, conditions imposed on the property that prevent the installation of wells, thereby eliminating the groundwater use pathway; conditions imposed to prevent future residential land use, etc., or

- Use of monitored natural attenuation to reduce COC concentrations.

Prior to implementation of the RMP, the evaluator must submit the plan to MDNR for approval. A RMP has to be tailored to meet site-specific conditions. However, at a minimum, it should include:

- The reasons why a RMP is being prepared and the specific objectives of the plan. As mentioned above, reasons for preparing the plan include:

  - Exceedance of target levels. The RMP should very clearly indicate the pathway, COC, and media that exceed the target level.

  - Need for AULs. The RMP should very clearly identify the specific reasons why AULs are necessary and the area to which they apply.

  - Presence of recoverable non-aqueous phase liquid. The RMP should very clearly indicate the wells where this condition exists and the extent of the LNAPL.

- A description of the specific activities that will be conducted as a part of the RMP. Examples include soil vapor extraction until the representative soil concentrations achieve a specified numerical value, or semi-annual monitoring of specified wells until concentrations show a clear decreasing trend. For the latter, the RMP shall indicate the method used to confirm plume stability (plots, contour maps or statistical evaluation of data). Note that, for active remedial actions, a corrective action plan must be prepared for submittal to, and approval by, MDNR.

- The RMP shall include specific criteria that will be used to demonstrate that the RM activities have been successfully completed. Generally, this demonstration will require the collection of samples from the medium or media of concern. Note that a RMP Performance Monitoring Plan must be submitted to, and approved by, MDNR for such activities.

- An explanation of the data that will be collected and the manner in which it will be analyzed during implementation of the RMP. An example of data that might

be collected would be confirmatory soil or groundwater sampling data to demonstrate the effectiveness of the remedial measures.

- Details of how and when the data will be evaluated and presented to MDNR. Examples include trend maps, concentration contours, concentration vs. distance plots, calculations related to mass removal rates, etc.

- If AULs are a part of the RMP, sufficient documentation must be provided to MDNR demonstrating the existence, execution, and long term viability of the AULs. Note that an AUL Work Plan is required when AULs are proposed to address a specific risk or risks.

- As appropriate, the RMP shall also include contingency plans that will be implemented should the selected remedy fail to meet the overall objectives of the RMP in a timely manner or the remedy is not as effective as anticipated.

- A schedule for implementation of the plan. Where the duration of the proposed activities is expected to exceed a few months, a detailed project time line shall be developed. This should include all major milestones as well all as deliverables to MDNR.

MDNR will review the RMP and either approve the plan as submitted, approve the plan with comments, disapprove the plan, or disapprove the plan with comments. The person who prepared the plan shall then revise the RMP to include MDNR's comments and resubmit the plan for approval. Upon receipt of approval, the entity performing the RMP should begin implementing the plan as per the approved schedule.

Note that Section 12 of this document provides further information regarding the content of a RMP and related work plans. This section and Section 12 should be carefully reviewed prior to developing a RMP.

10.3 COMPLETION OF RISK MANAGEMENT ACTIVITIES

Upon successful completion of the approved RMP, the entity performing the work will submit a RMP Completion and Performance Monitoring Report that will include (i) confirmation of the successful completion of all elements of the RMP, (ii) a request for site closure, and (iii) a request to plug and abandon monitoring wells related to the environmental activities at the site. Refer to Section 2.5 and Section 12 for further information regarding final reporting.

Upon review of the final report, MDNR will either issue a NFA letter for the site or provide comments back to the submitter explaining why a NFA letter cannot be issued and what additional activities are necessary. RMP activities must continue until MDNR issues a NFA letter or provides written authorization to terminate RMP activities.

10.4 NO FURTHER ACTION PROCEDURE

When the MRBCA evaluation has been performed, the evaluation has been approved by MDNR, and the approved RMP has been successfully implemented, the evaluator may submit a request for issuance of a NFA letter to MDNR**.** The NFA request should be a part of the RMP Completion and Performance Monitoring Report discussed above and in Section 12.

Typically, the RMP Completion and Performance Monitoring Report, including the NFA request, would be the last report submitted to the MDNR prior to receiving a NFA letter. MDNR will review the report and request and issue a NFA letter if all applicable requirements have been met.